ARMY RESERVE EQUIPMENT MODERNIZATION: THE ACHILLES HEEL TO TOTAL INTEGRATION

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This paper provides an inquiry concerning the United States Army's Cold War resource management constructs and the importance of reviewing current equipping policy restrictions and budget processes and identifying changes necessary to support emerging requirements. These constructs were developed or evolved in response to valid resource management requirements during that era that, in some cases, were directly linked to the statutory responsibilities of non-Army entities (i.e., the Congress, Department of Defense (DoD), Chairman of the Joint Chiefs of Staff, Combatant Commanders, etc.) to manage or oversee readiness and assess risks.

While the operational and strategic environments have significantly changed since the end of the Cold War and the emergence of the Global War on Terrorism (GWOT), several requirements behind these longstanding constructs have endured. This paper presents these longstanding constructs that were barriers and impediments to full integration between the active and reserve components. Additionally, this paper reviews the Army's current and future initiatives that are competing for limited resources that will undoubtedly challenge the planning, programming, and budgeting processes of equipment modernization.

Finally, this paper concludes with recommendations for changes to the Army's equipping policy to better equip and modernize the Army Reserve and for further research concerning it.

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THE ACHILLES HEEL TO TOTAL INTEGRATION**

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iv

TABLE OF CONTENTS

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I became interested in equipment modernization in the Army Reserve as a result of my assignment to the Systems Integration Team in the Force Programs Directorate in the Office of the Chief of the Army Reserve in Washington, DC. I served as a Systems Integration Action Officer and then as Chief of the Systems Integration Team for four years. After the events of September 11, 2001, I witnessed firsthand the importance of ensuring total equipment integration between the active and reserve components and was personally involved in ensuring Army Reserve units were properly equipped and compatible with the active component to fight the GWOT. Soldiers deserve nothing less.

There are a few people I would like to recognize and thank that assisted me in providing the necessary information required to complete this paper. First, LTC Carol Leighton of the Office of the Chief of the Army Reserve for providing me the most up to date Army equipping and modernization information coming out of the Army staff through numerous emails and telephone calls. In addition, LTC Ed Grube of the US Army Force Management and Support Agency and LTC Ned Popovich of the Office of the Assistant Secretary of the Army for Manpower and Reserve Affairs for providing the latest information on the Army's force management and documentation process and the Army Force Generation model, respectively. Finally, Mr. Robert Riffle, my program advisor here at The University of Texas for keeping me from doing what I do best – procrastinating and COL Joseph Charsagua of the US Army War College for serving as my Senior Service College Fellow mentor, proofreading my paper, and providing critical feedback. Credit for much of what is presented in this paper is a result of the opportunities that I have had, the experiences gained, and the professional Soldiers and civilians that I have the pleasure to serve with while assigned to the Office of the Chief Army Reserve. Any errors, omissions, or other shortcomings are mine alone.

If you have any questions or comments regarding this paper please contact me at ronnie.dix@us.army.mil.

viii

ABBREVIATIONS AND ACRONYMS

9-11	September 11, 2001
AL&T	Acquisition, Logistics, and Technology
AREF	Army Reserve Expeditionary Force
AREP	Army Reserve Expeditionary Package
ARFMES	Army Reserve Fleet Management Equipment Strategy
ARFORGEN	Army Force Generation Model
ARPL	Army Priority List
CAP	Critical Acquisition Positions
CBO	Congressional Budget Office
CS	Combat Support
CSS	Combat Service Support
CTC	Combat Training Center
DAMPL	Department of the Army Master Priority List
DoD	Department of Defense
DoDD	Department of Defense Directive
DPP	Dedicated Procurement Program
EAC	Echelons above Corps
EAD	Echelons above Division
EE PEG	Equipping Program Evaluation Group
EOH	Equipment On-hand
ER	Equipment Readiness
FMTV	Family of Medium Tactical Vehicle
FP	Force Package
FY	FY
GAO	Government Accountability Office
GWOT	Global War on Terrorism
II PEG	Installation Program Evaluation Group
ILO	in-lieu of
LCMC	Life Cycle Management Command
LMTV	Light Medium Tactical Vehicle

LTC	Lieutenant Colonel
LTG	Lieutenant General
MM PEG	Manning Program Evaluation Group
MTOE	Modified Table of Organizational Equipment
MTV	Medium Tactical Vehicle
NGREA	National Guard Reserve Equipment Appropriation
NVG	night vision goggles
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
ONS	Operational Needs Statement
OOD	Out-of-DAMPL
OO PEG	Organizing Program Evaluation Group
OPA	Other Procurement Army
PEG	Program Evaluation Group
PEO	Program Executive Office
PM	Program Management
POM	Program Objective Memorandum
RFPB	Reserve Forces Policy Board
SDS	Strategic Deployment Site
SRC	selected reserve force
SS PEG	Sustaining Program Evaluation Group
TRP	Training Readiness Platform
TTC	TASS Training Centers
TT PEG	Training Program Evaluation Group
TDA	Table of Distribution and Allowances
TPE	Theater Provided Equipment
US	United States

ARMY RESERVE EQUIPMENT MODERNIZATION: THE ACHILLES HEEL
TO TOTAL INTEGRATION

Introduction and Problem Statement

The Reserve Components: An Integral Part of the Army's Deployed Operational Force

Today's reserve components hardly resemble the reserve components of the Cold War, which were – by design – principally elements of the Nation's strategic reserve. As such, they were organized and resourced at lower levels than most active component units. In 1970, the Army was twice as large as the force we have today with over two million men and women in uniform; 1.36 million in the active component and 667,000 in the reserve components. Over the next decade and a half, the Army reduced its total end strength by over a half-million Soldiers. In 1991, with 732,000 active Soldiers, the Army had enough strategic depth to contribute 400,000 Soldiers to Operation Desert Storm while maintaining the reserve components as a strategic reserve. However, during the 1990s, the total Army force drew down another half-million Soldiers with the active component authorized 482,400. Today, the active Army is less than 40 percent of its size 35 years ago, and the sustained high operational demand for volunteer Soldiers is unprecedented. By necessity, the Army's reserve components have become an integral part of the deployed operational force. However, transforming the reserve components to become part of the operational force, on top of their traditional role as the strategic reserve, requires us to change the way the Army National Guard and the Army Reserve are organized, resourced, trained, and mobilized. We recognize, with great clarity, that today's dangerous and uncertain strategic environment demands that all units are maintained at a high state of combat readiness and prepared to rapidly deploy as part of the total force.

---Passage before the Commission on National Guard and Reserves [1]

Since 1989, the Army has supported 43 joint operations, many of which required a continuous rotation of forces to sustain. Today, the Army has over 260,000 soldiers deployed in approximately 90 countries conducting theater security cooperation and joint and multi-national operations in support of national strategic objectives. Over 740,000 active and reserve component soldiers have served overseas in the Global War on Terrorism (GWOT).

In today's strategic environment, the Army faces substantive challenges in meeting emerging requirements and in the GWOT. Responding to the terrorist attacks on September 11, 2001, the 2002 *National Security Strategy* established the priority to "disrupt and destroy terrorist organizations of global reach" and emphasized transformation of our military forces to

ensure the ability to achieve decisive results [2]. The 2004 *National Military Strategy* described the desired attributes of joint force transformation: "fully integrated, expeditionary, networked, decentralized, adaptable, decision superiority, lethality." To meet this challenge, we continue to focus on three priorities: winning the GWOT; integrating our military services, thus enhancing joint war-fighting capabilities; and transforming for an uncertain future [3].

The *National Military Strategy* is based on the ability to project US military forces globally and to sustain operational tempo in the theater upon deployment. A crucial element of this strategy is the increased reliance upon the reserve component. They are essential to fielding a fighting force capable of supporting multiple missions, from general war to peacekeeping and humanitarian and support operations. This strategy also requires that forces be ready to go at a moment's notice. Department of Defense (DoD) policy requires that equipment be provided to units according to their planned wartime mission, regardless of their component. However, because resources are limited, the most modern equipment is usually provided to units that would deploy first in a crisis. Units deploying later must generally rely on older equipment called legacy systems, or obtain equipment through cross-leveling from non-deploying units. The equipment gap between early- and later-deploying units leads to problems with equipment compatibility and sustainability. With the increased use of the reserve component, it is important that these units be equipped to the same degree as traditional *first-to-fight* units. The reserve component is currently not equipped to meet the mobilization requirements of the *National Military Strategy*. Furthermore, current reserve component equipment has significant compatibility concerns with the active component given that reserve component equipment is generally older [4].

This paper focuses on the US Army's Cold War resource management constructs and the importance of reviewing current equipping policy restrictions and identifying changes necessary to support emerging requirements, Army transformation, and integration. These constructs were developed or evolved in response to valid resource management requirements during that era and, in some cases, were directly linked to the statutory responsibilities of non-Army entities to manage or oversee readiness and assess risks. While the operational and strategic environments have significantly changed since the end of the Cold War and the emergence of the GWOT,

2

several requirements behind these longstanding constructs have endured. This paper presents, compares, and analyzes perspectives from several stakeholders and concludes with recommendations for changes to better equip and modernize the Army Reserve Combat Support (CS) and Combat Service Support (CSS) force structures to improve integration and compatibility with the active component.

Transformation of the Total Army to a Modular Force

During the Cold War, most battle plans called for the Army to be prepared to fight prolonged ground campaigns supported by well-established support bases and supply lines. Reductions after World War II and the conflict in Vietnam left the Army without sufficient soldiers, training, and modern equipment to handle its worldwide commitments. As a result, US troops were dangerously unprepared for the Korean War and lacked the conventional forces to deter the Soviets in Western Europe throughout the 1970s. To avoid a similar fate, today's Army must have sufficient resources to balance overseas commitments, readiness needs, and modernization requirements. In contrast, the wars in Afghanistan and Iraq required a deployment of mixed forces tailored to specific missions rather than its traditional brigade, division, and corps formations.

Together with the administration and the US Congress, the Army recognized the need to prepare itself to handle the demanding and varied missions of the twenty-first century. In October of 1999, the Army Chief of Staff, General Eric Shinseki, provided the vision and leadership for the Army to embark on a revolutionary journey of transforming the Army. The vision of General Shinseki and the goal of Army Transformation was to become lighter, more responsive, agile, versatile, lethal, survivable, and sustainable, across the full spectrum of military operations as an integral member of a cohesive joint team [5]. Unfortunately, the focus was mainly on transforming the combat arms structure within the active Army. The incorporation of the logistics requirements into the design of new systems and platforms, where reducing the weight and support requirements (such as fuel and ammunition) for Army forces proved equally challenging for the Army. A common misnomer is that the weight of armored vehicles, like tanks, is the greatest limiting factor in deploying the Army. In fact, the vast

3

preponderance of the Army's total weight is driven up by logistical and other support requirements. Coordination with the reserve component in the initial transformation process was critical, but minimal, considering the reserve components comprise 57 percent of the Army's CS and CSS capabilities as annotated in Table 1 [6].

Table 1. Percentage of Army Structure by Component

Component	Combat	Combat Support	Combat Service Support
Army	55%	33%	37%
Army National Guard	44%	44%	35%
Army Reserve	1%	23%	28%

The events of September 11, 2001 (9-11) caused the Army to quickly shift focus from peacetime to wartime posture and reinforced the need for the military to transform to ensure the ability to achieve decisive results during all conflicts throughout the world. As a result, the US Army had now become an army transforming while at war. The threat changed from the traditional force on force conventional warfare to small scale contingencies on a nonlinear, asymmetrical battlefield. The Army entered the long war against global terrorism approximately $56 billion short in equipment readiness and modernization as recently testified before the Congress [7]. Prior to 9-11, the DoD took what some senior civilian and military leaders termed a *procurement holiday* in the 1990s and is now paying the price and finding it very difficult to recover. In the aftermath of the Cold War, the DoD cut its procurement funding more deeply than it cut its forces. Average purchases over the past decade sank well below the quantities needed to sustain the forces. In order to equip all its forces with deliveries, modest at best, the military services had to extend planned service life of equipment further than in the past, thus causing an increase in average of equipment as well [8].

In August 2003, the new Army Chief of Staff, General Peter Schoomaker, began revising service plans for transforming the Army to meet the emerging requirements of the twenty-first century, especially what was anticipated to be a long war against terrorism. General Schoomaker expanded the vision of his predecessor, General Shinseki, and took transformation to the next level. He demonstrated a perceptive appreciation of future national security needs and took

4

appropriate steps to include the Army National Guard and the Army Reserve as full and equal partners in the transformation of the total Army; thus ensuring the reserve components were complimentary and fully integrated into the transformation process of what is now considered army modularity [9].

The overriding goal of the modularity reorganization is to convert the Army's combat brigades into a series of units with new designs that are more capable of independent operations. Under the modularity plan, combat brigades would be standardized as light, medium, or heavy, with two subordinate combat battalions and a more robust set of support units included in the brigades as annotated in Figure 1 [10].

The objectives of army modularity are:

- To increase the number of brigade combat teams within the Army;

- To create brigade-size CS and CSS formations of common organizational designs that are easily tailored and more rapidly deployable to meet the demands of the combatant commanders and reduce the complexities of joint planning and execution; and

- To redesign organizations to perform as integral parts of the joint force, making them more effective across the range of military operations and enhancing their ability to contribute to joint, interagency, and multinational efforts [11].
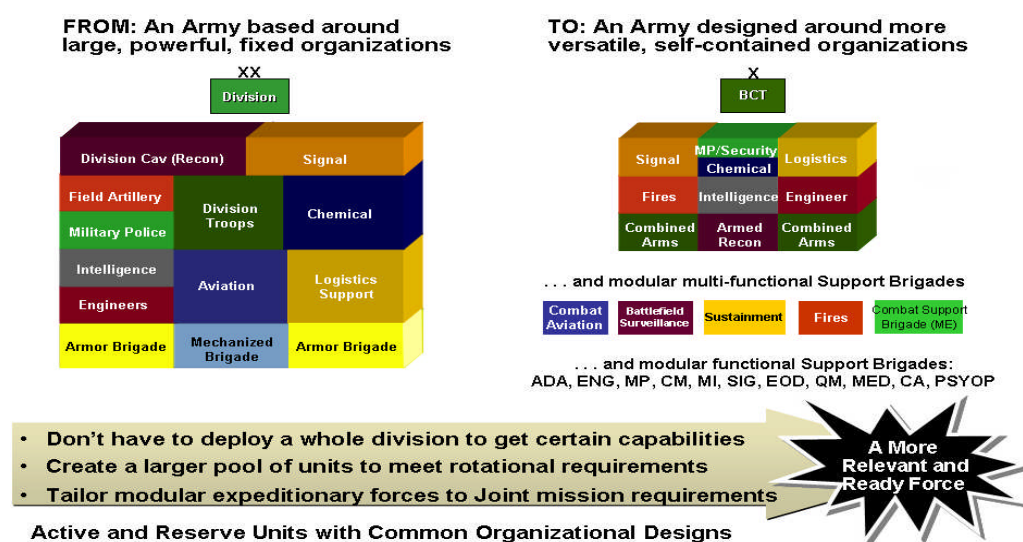

Figure 1. Transformation from Division to Brigade – Centric Organizations

5

The pre-modular force, by contrast, contains numerous types of combat brigades including armored, mechanized infantry, Stryker, light infantry, airborne, and air assault, each with its own structure, with each brigade including three subordinate combat battalions and a more limited set of support units. Pre-modular formations were organized, manned, and equipped differently and were not interchangeable; no two Army combat divisions looked similar, and the support structure was equally diverse. Pre-modular forces were hard to package for deployment as no two deployments are the same [12].

While numerous definitions of transformation are in use within the DoD alone, the authoritative definition given in the DoD planning guidance is:

"a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world" [13].

Simply stated, the Army views *transformation* as the "continuous evolution of capabilities over time from the current to future force."

Why is including the Army's reserve components as an equal and full partner in the transformation process important now as opposed to any other time in history? As stated by LTG Jack Stultz, Chief of the Army Reserve, during testimony to the Commission on National Guard and Reserves on July 19, 2006:

"Today's units must be prepared and available to deploy with their full complement of trained Soldiers and equipment whenever the Nation calls. This transformation will progress as the Army Reserve continues to meet the ongoing operational challenges of the GWOT, while simultaneously supporting missions at home and around the globe" [14].

The Army Reserve is the Nation's other "Federal Force" just as the active component, established in law. That law, *Title 10, Subtitle E, Part 1, Chapter 1003, Section 10102 of the US Code* states:

"The purpose of each reserve component is to provide trained units and qualified persons available for active duty in the armed forces, in time of war or national emergency, and at

6

such other times as the national security may require, to fill the needs of the armed forces whenever more units and persons are needed than are in the regular components" [15].

During the Cold War, the Army Reserve would supplement the active Army in the event of an extended conflict. However, since the mid-1990s, the Army Reserve's citizen soldiers have been continuously mobilized to support operations worldwide, including those in Bosnia and Kosovo. In today's strategic environment, the Army Reserve has evolved into an operational force, providing specialized skills for CS and CSS for Operation Enduring Freedom and Operation Iraqi Freedom (OEF and OIF).

The Army Reserve is composed primarily of citizen soldiers who balance the demands of a full-time civilian career with part-time military service. Throughout 2006, the Army Reserve maintained an average of more than 32,000 soldiers mobilized. Since 2001, more than 120,000 Army Reserve soldiers answered the call to serve on active duty in support of the Army and the GWOT [16]. The Army Reserve makes up approximately 26 percent of the Army's CS and CSS force structure [17]. Having the most modern lethal combat force being supported by obsolete and incompatible support equipment severely degrades readiness and significantly impacts deployment, logistics, and training requirements, but more importantly, degrades the effectiveness of support to the combat force.

The Current Status of the Army Reserve's Equipment

As the operational tempo of the Army Reserve has increased, so have the challenges of equipping the force. The Army Reserve is almost wholly structured to perform combat support and combat service support for the Army at what is currently known as echelons above division (EAD) and echelons above corps (EAC). Therefore, Army Reserve units are not authorized the weapons, tactical communications and other types of equipment necessary to fight and survive on today's nonlinear, asymmetrical battlefield [18].

As a result of limited funding for equipment procurement and the Army Reserve's designation as a *strategic reserve* and largely structured as an EAD and EAC support force, the Army placed priority on equipping units expected to deploy in a tiered sequence to a combat theater. However, since the GWOT, more than 30 percent of Army Reserve units have deployed

out of sequence, a reality that has caused the Army Reserve to cross-level or redistribute assets internally. In support of these soldiers, the Army Reserve had only 76 percent of the required equipment on-hand (EOH). *Required equipment* refers to those items documented on the unit's Modified Table of Organizational Equipment (MTOE) and is necessary in order for a unit to go war and successfully perform its mission. From September 2001 to April 2005, the Army Reserve cross-leveled approximately 235,900 pieces of equipment as annotated in Figure 2, ranging from individual and unit equipment to weapons, to nuclear, biological, and chemical items [19].
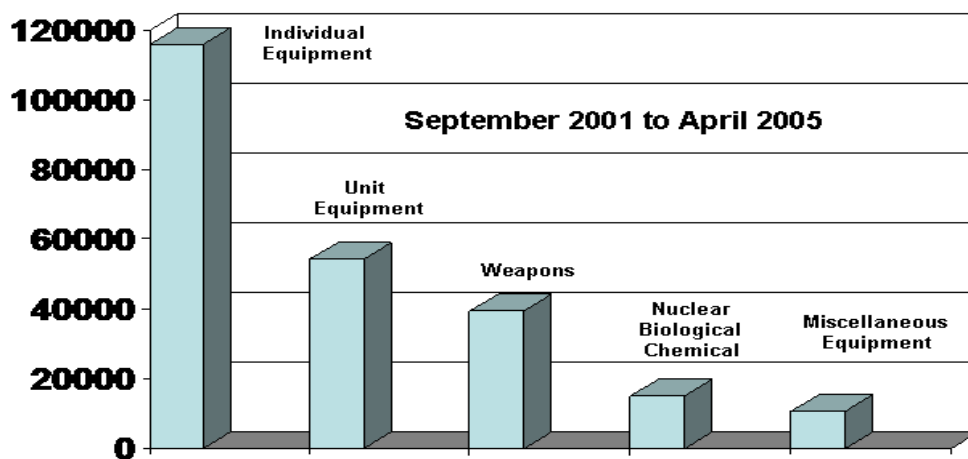
Figure 2. Equipment Transferred from Non-mobilizing Units to Mobilizing Units

The Army Reserve met its current equipment obligations through several methods, including:

- Theater-provided equipment (TPE): This is equipment available to a unit upon arrival in the theater. However, TPE may be different from the equipment on which a unit received training at the mobilization station.

- Cross-leveling of equipment: This is very maintenance intensive and resource driven to transfer and ship thousands of pieces of equipment from non-mobilizing units to those units mobilizing.

8

- Limited new army procurements: This is equipment that was in the pipeline ready for fielding or moved up in the distribution process justified by an approved operational needs statement (ONS) [20].

The equipping methods for current deploying forces challenges the next deploying forces that are left at the home station with minimal modernized equipment and reduced EOH, combined with the large amount of substitute and in-lieu of (ILO) items that significantly impacts retention and certainly diminishes a unit's ability to properly train prior to deployment. Increased funding for the procurement of new equipment and the sustainment of existing equipment is essential in order to maintain a trained and ready force in support of the GWOT, the Army's transformation to a modular-based force, and the Army Force Generation (ARFORGEN) model [21]. The ARFORGEN process will be discussed later in this paper.

In order to meet the future obligations of the GWOT and meet the requirements of the Army's transformation into a "plug and play" modular force, the Army Reserve will have to do much more than focus primarily on managing current resources. The Army must step up and resource the Army Reserve at a level that is commensurate to its increased roles and responsibilities as being part of the operational force to ensure that it can meet the emerging requirements of the twenty-first century. Resourcing the Army Reserve commensurate to its roles and missions is essential to ensuring the success of the ARFORGEN model. Without adequate funding for procurement of modern equipment, the Army Reserve's new strategy of equipping and training the force before mobilization, which is the foundation of the Army Reserve Expeditionary Force (AREF) and Army Reserve Fleet Management and Equipping Strategy (ARFMES) will fail and therefore, so will the ARFORGEN model. Continuing partial funding for the modernization of critical CS and CSS equipment will widen the incompatibility gap between the active and reserve components.

The Army Reserve: A Force in Partial Support

As the US Army enters the sixth year following the terrorist attacks of 9-11, the Army Reserve is in greater demand today than at any time since World War II. Although the Army Reserve remains decisively engaged with the Army in joint and expeditionary operations around

9

the world, it faces several challenges in equipping-wartime losses, compatibility, modernization and resources; and it is becoming increasingly difficult for the Army Reserve to continue to provide ready forces in the near term due to worsening equipment shortages and lack of modernization.

As stated earlier, in response to the increased demands of the reserve components over the last five years, the DoD has shifted the role of the reserve components from a strategic reserve to an operational reserve. As a result of this shift in roles, the demand on equipment and its usage has risen significantly in the last five years. In support of constant deployments, in FY 2006, the Army Reserve reported having only 76 percent of the required EOH [22].

As of September 30, 2005, the Army Reserve was resourced to 78 percent of its equipment requirements. Unfortunately, this percentage represents EOH rather than actual modernization requirements. The EOH percentage includes approved substitutes and ILO items that are authorized in accordance with regulatory guidance for reporting equipment readiness. While these substitute items may be useful for training purposes, commanders generally do not allow these older items in the theater of operations because they may not be compatible with the equipment other units are using and cannot be sustained logistically overseas. In addition, this estimate includes units that have equipment that is undergoing maintenance after returning from deployment or was left overseas, so these items are not readily available for use.

Approximately 31 percent of the Army Reserve EOH is obsolete or non-compatible with the modern force. This equipment ranges from basic M16A1 rifles, communication systems, M35s (2.5-ton trucks), M800 series trucks (5-ton trucks), night vision goggles (NVG), and generators [23]. While equipping challenges of the early deploying units were met through massive transfers of equipment, the continued operational support of OEF and OIF is placing additional strain on the Army Reserve EOH and equipment readiness (ER) status.

As Army Reserve equipment continues to age, it becomes less reliable and more expensive to maintain, thus a negative trend in readiness is inevitable. Decisions in the 1990s to reduce purchases of new equipment left the military and especially the Army Reserve with aging fleets of vehicles that are increasingly expensive to maintain. This situation creates a cycle in which more funds are spent maintaining older equipment at the expense of new purchases, which

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in turn leads to still older equipment and higher maintenance costs, thereby affecting readiness as well as maintenance costs. Several critical items of major equipment are near or past their economical useful life. A few examples include the current light medium and medium tactical truck fleets, materiel handling equipment, and engineer equipment. Aging equipment means operational and sustainment costs will continue to increase while equipment serviceability rates decrease [24].

Although, the Army has funded the Army Reserve to an adequate level to develop comprehensive repair, overhaul, rebuild, and conversion programs to extend the service life for existing equipment, it has failed to procure adequate levels of modern compatible CS and CSS equipment [25]. For instance, in 2006, the Army Reserve's top five modernization shortfalls as annotated in Table 2 exceeded a staggering $5.5 billion alone as reported to the Assistant Secretary of Defense for Reserve Affairs during the annual equipment management brief [26]. The shortfall in equipment modernization is a result of an outdated Cold War centric Army equipping strategy for the reserve components and the Army's willingness to accept risk in not modernizing the Army Reserve.

Table 2. Top 5 Modernization Shortfalls for the Army Reserve

Equipment Item	Total Requirement	On-Hand	Total Funded in the FYDP	Total Unfunded	Unfunded Cost
Light Medium Tactical Vehicle (LMTV) 2.5 Ton Truck	4,512	835	972	2,705	$ 454.4 M
Medium Tactical Vehicle (MTV) 5 Ton Truck	8,784	297	1,944	6,543	$ 1.5 B
Multi-band Super High Frequency (SHF) Terminal (Phoenix)	50	2	0	48	$ 134.5 M
High-Mobility Multi-purpose Wheeled Vehicle (HMMWV)	16,532	9,495	3,034	4,003	$ 800.6 M
Armored Security Vehicle (ASV)	288	0	0	288	$222.9 M

The Army's Equipping Policy–Cold War Centric

Prior to 9/11, during the Cold War to the first Gulf War, the primary goal of the Army's Equipping Policy resource management constructs was to produce modern, fully equipped forces capable of deploying as components of a unified command or joint task force under a concept of tiered readiness. To the extent possible, it was supposed to possibly align with readiness

guidance in the Defense Planning Guidance. However, experience with contingency operations demonstrates that forces from all force packages (FPs) were being used. Because all FPs were being used, it caused havoc on the units deploying outside of their pre-planned sequence and was very unpredictable [27]. The Force Packaging process will be discussed in detail later in this paper.

Therefore, to eliminate the unpredictability of which FPs would deploy next, the goal at a minimum was to bring the entire Army to an S-3 readiness level (79 to 65 percent) of EOH. An S-3 level rating meant that a unit could perform many of its wartime mission tasks. This was to allow for adequate training and a swift increase to an S-1 readiness level (100 to 90 percent) of EOH through the cross-leveling process for early deployers as well as units alerted for a contingency operation. The late deployers were those units that lacked the necessary personnel and equipment to adequately perform their mission, but on the assumption there would be plenty of time and funding to resource them before deployment [28].

The Army's equipping policy used a two-step approach to balance total Army readiness against the needs of early-deploying units. First, units must have had sufficient equipment to meet minimum readiness standards before deployment. Generally, a unit must be at S-3 level of EOH to be considered for deployment. However, depending on the mission or the requirements of the Combatant Commander, by and large, units were deploying at S-1 or at almost 100 percent of equipment required by the MTOE [29]. Second, the Army would fill unit equipment requirements according to priorities set by the Department of the Army Master Priority List (DAMPL). Units were resourced and equipped by DAMPL sequence based on deliberate plans and advocated a first-to-fight, first-to-support principle. The Army's equipping policy states that distributing scarce equipment according to the DAMPL sequence guides the Army to place critical equipment in those units likely to be the first to fight. However, the DAMPL sequence is only a baseline, and deviations frequently occur. As a result, high-priority units are sometimes equipped later than lower priority units [30].

The other two categories of new equipment distribution were the Army Order of Precedence (AOP) and the Out-of-DAMPL (OOD) actions. An AOP is used for fielding or redistribution actions or made necessary by contingency operations. AOP was an equipping

method that was more applicable to the reserve components. As reserve units were moved up the DAMPL and mobilized out of sequence they would fill equipment shortages internally or if the equipment was not available internally, then it was distributed by the Army through the normal fielding process [31].

An OOD action is a one-time, near-term exception usually affecting a single unit. The OOD process is a "bottoms-up" procedure provided to accelerate action on immediate needs for authorized equipment that routine systems would fulfill at a later date. The OOD procedure applies to items authorized on MTOEs or Tables of Distribution and Allowances (TDAs) and requires that they are on valid requisitions with valid status. Neither AOP nor OOD replaced the DAMPL for routine replenishment and sustainment actions. The problem was the Army's equipping policy left the Army Reserve too dependent on the active Army to equip and modernize the force. As a non-operational strategic force in reserve, mainly comprised of EAD and EAC, CS, and CSS structure, in a resource-constricted environment, modernization of the Army Reserve was not a priority, nor was it practical.

Financially, the Army was not capable of modernizing the Army Reserve nor was it expected to do so. When the Army received new equipment, it would cascade its older and sometimes less compatible equipment to the Army Reserve. After all, the Army Reserve was, by design, principally elements of the Nation's strategic reserve. As such, they were organized and resourced at lower levels than most active component units [32]. The GWOT and the emerging threats of the twenty-first century have changed everything, especially the Army's outlook on equipping strategies regarding the reserve component and the Army's unwillingness to accept risk.

The Army's New Equipping Strategy within the ARFORGEN Model

The Army Equipping Strategy provides the resourcing framework for equipping the Army as it rebalances its force structure within the active and reserve components into a modular force. Basically, rebalancing the force entails reducing under utilized combat arms force structure and increasing the combat support and combat service support force structure. The conversion of low demand force structures such as artillery or armor into high-demand military

13

police, logistics, or civil affairs units to support the war on terrorism is an example of rebalancing. The objective of rebalance is to achieve the right mix of capabilities and align force structure with authorized end strength to man cohesive units. It also includes achieving the right mix and numbers of units between the active and reserve component. The resourcing framework for equipping the Army does not take into consideration all of the other competing requirements that will challenge the tenets of the Army's ARFORGEN model. As units move through the three successive force pools—the *Reset/Train*, *Ready*, and *Available* pools—it leaves little flexibility for deviation or the possibility of unforeseen circumstances. Figure 2 is a graphic depiction of how units will progress through the ARFORGEN process [33]. The tenets of the Army's overarching equipping policy are spelled out in Annex F (ARFORGEN Implementation Plan), change four to the Army Campaign Plan.
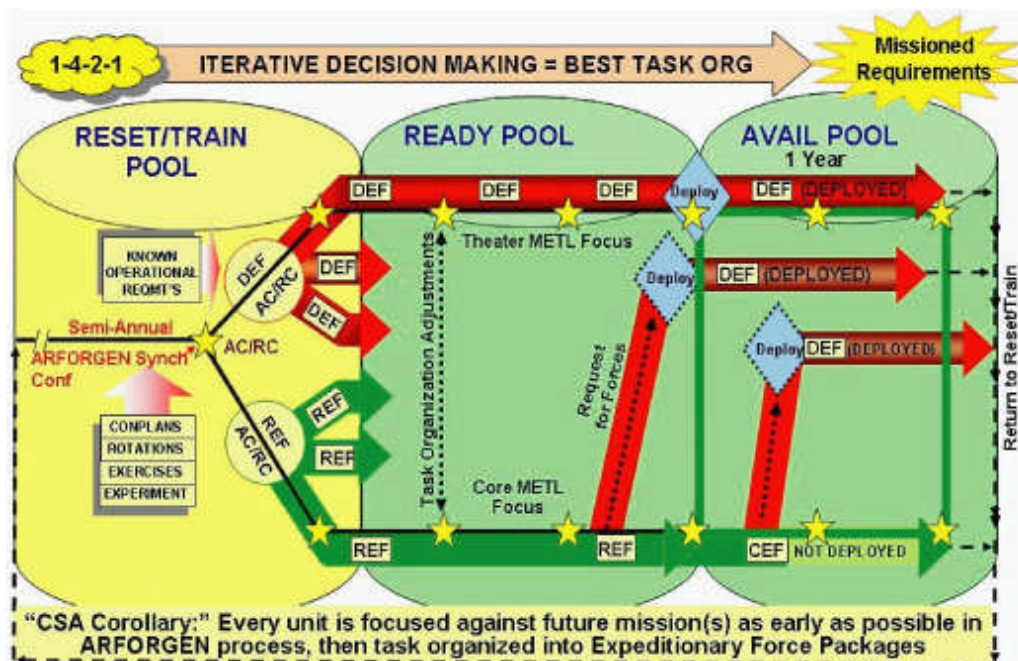

Figure 2. The Army Force Generation (ARFORGEN) Model

Under the ARFORGEN model, the Army intends to provide every unit 100 percent of requirements on standard unit authorization documents as quickly as funding will allow. During the Bridging Phase, capability enhancement is primarily through equipment maneuver. As the Army

IAT.R0487

moves into the Objective Phase, capability enhancement will occur through equipment procurement.

Due to wartime constraints, the Army cannot realistically equip all units at 100 percent of the level required by their objective TOE. Therefore, the Army is in a bridging phase in which units receive equipment primarily through equipment maneuver, which includes re-use, repositioning, and some equipment procurement. As the Army moves toward the Objective Phase, new procurement will reduce the need for equipment maneuver between units [34].

The ARFORGEN process will provide units increasing amounts of equipment as they move through the phases of the model, thus enabling the Army to better allocate available equipment and help manage risks associated with specific equipment shortages. Under this model, there are three types of equipment sets: a baseline set, a training set, and a deployment set, which will be distributed as a unit progresses or moves through the cycle. The baseline set would vary by unit type and assigned mission and the equipment it includes could be significantly reduced from the amount called for in the modular brigade design. Training sets would include more of the equipment units need to be ready for deployment, but the equipment would be located at training sites throughout the country and units would not have immediate access to the equipment. The deployment set would include all equipment needed for deployment, including theater-specific equipment.

The Army G-3 will set priorities for equipment fill in accordance with the Army Resourcing Priorities List (ARPL). Unlike the DAMPL, the ARPL sequence focuses strictly on deploying forces; whereas equipment distribution under the DAMPL focused on assumptions contained in deliberate operation plans. The Army maintains visibility of equipment status at all levels on the ARPL and will manage and account for equipment in unit sets at the highest level of an organization practical, such as company, battalion, or brigade, to ensure completeness and oversight of the equipment transfer [35]. In the ARFORGEN model, the Army will manage all equipment regardless of component.

Under ARFORGEN, all equipment is considered Army equipment and will be positioned to best support the *National Military Strategy*. The Army may need to maneuver equipment between the active and reserve components and will use existing guidance, such Department of Defense

15

Directive (DoDD) 1225.6, *Equipping the Reserve Forces*. The purpose of DoDD 1225.6 is to ensure reserve component appropriated equipment is not transferred or loaned (in excess of 90 days) to the active component without being submitted for approval after coordination with the Chairman of the Joint Chiefs of Staff, through the Assistant Secretary of Defense for Reserve Affairs, to the Secretary of Defense to ensure accountability. Army Commands, Army Service Component Commands, Direct Reporting Units, and Component Headquarters will ensure units have the required capabilities to maintain equipment readiness[36].

The Army's strategy seeks to develop and field combat-capable units through an appropriate mix of significant organizational restructuring into more modular units, insertion of new capabilities where and when feasible, selective procurement and fielding of new equipment (*modernization*); and restoring and preserving readiness of current equipment (*reset*), including the rebuilding and upgrading of key existing equipment through recapitalization. The upgrade of Army equipment is placed into two primary categories:

- Modernization: the development and fielding of improved operational capabilities through a combination of organizational restructuring into modular formations, the insertion of new technologies into existing systems and units, and/or the procurement of new systems with improved capabilities. All of these measures must be complemented by effective soldier and leader training and education in order to reach their full potential [37].

- Reset: the restoration/preservation of the combat readiness of units, returning from or preparing for operational deployments, through the repair or replacement of end items, parts, assemblies and subassemblies that are worn or broken; essential retraining and application of lessons learned; and readjustment of pre-positioned stocks of equipment and munitions. Incorporates recapitalization, which is the rebuild and selected upgrade of currently fielded systems [38].

The ARFORGEN model supports the transition of reserve component units from a strategic reserve to an operational force and is a positive step in the right direction regarding equipment modernization and total integration. A critical element of this transition is the shift away from managing reserve component operational tempo by individuals not by units. This will support the Army's goal for reserve component soldiers to train, deploy, and fight as a cohesive

unit with the same modern, compatible equipment [39]. The Army Reserve has been pro-active in the management of personnel and equipment and had devised its own strategies to *equip, train, and mobilize*; a paradigm shift from *mobilize, train,* and *equip* that will complement the Army's ARFORGEN model.

The Army Reserve's New Equipping Strategy

Under the direction of the former Chief of the Army Reserve, LTG James Helmly, the Army Reserve devised a compelling new strategy (AREF) that revolutionizes the force structure to *equip, train,* and *mobilize* Army Reserve units. The need to clarify mobilization timelines and policies prompted the Army Reserve to move from tiered readiness and linear deployment models toward smaller, capabilities-based deployable teams and sustain the numbers of Army Reserve units and soldiers needed to meet the continuing requirements of the GWOT. This model offers predictability through a five-year rotation cycle. Under the AREF construct, resources are aligned in accordance with where units are in the rotation cycle instead of resourcing by tiers. The AREF model includes ten Army Reserve Expeditionary Packages (AREPs) and distributes the most modern equipment to deploying units [40]. Thus, this maximizes the limited availability of modern equipment by strategically placing the remainder among the unit's home station; Strategic Deployment Sites (SDS), Combat Training Centers (CTCs), the Training Readiness Platforms (TRPs), and TASS Training Centers (TTC) [41].

The Army Reserve's new equipping strategy called the Army Reserve Fleet Management and Equipping Strategy (ARFMES) was developed in FY 2003 and synchronized with the five-year AREF rotation cycle beginning in FY 2004. As a unit in the AREP progresses through each year of the five-year rotation cycle, their state of readiness increases incrementally. Units in Year 5 are at the highest level of readiness, while units in Year 1 are at the lowest level. The strategy maximizes the use of limited modernized equipment. The five-year equipping strategy will begin with Year 1 (*reconstitution*) and finish with Year 5 (*employment*). Figure 3 graphically depicts the ARFMES cycle and complements the ARFORGEN model.

17
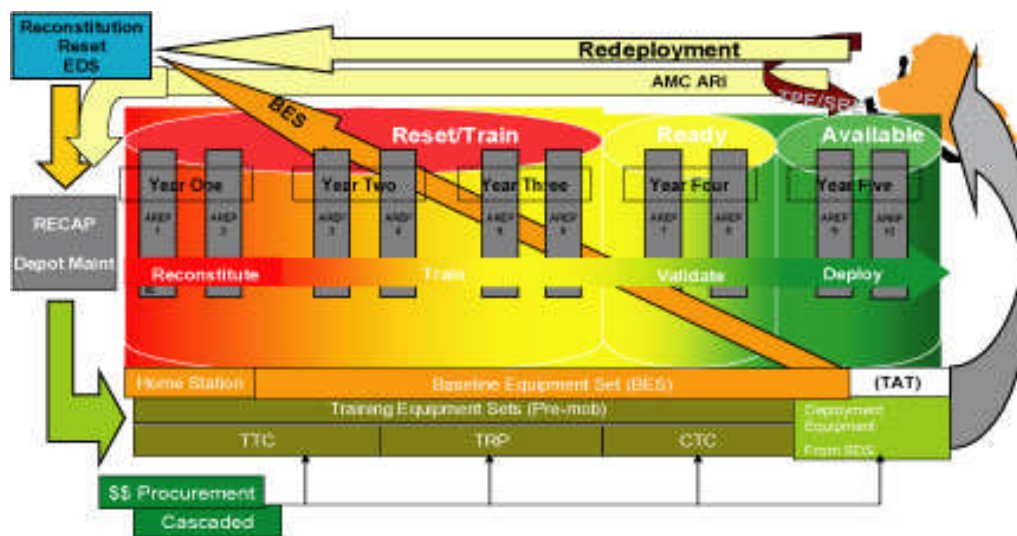
Figure 3. Army Reserve Fleet Management and Equipping Strategy

The ARFMES replaced the Army Reserve Logistics XXI program. In 2007, the Army Reserve begins the implementation of ARFMES business rules, processes, procedures, and the movement of equipment to strategically identified locations. Full implementation of ARFMES is expected by FY 2011.

The primary tenets of ARFMES are that equipment will be consolidated at central locations to support the Army Reserve Training Strategy that is accounted for by the unit, but managed as a fleet. The most modern equipment will support deployments, individual skills training, validation and collective skills training and unit training assemblies. Units and soldiers will be maneuvered to the equipment, not the equipment to the unit; making the most efficient and effective use of available equipment, minimizing the movement of equipment and eliminating lost training opportunities [42].

The success of AREF and ARFMES will depend on the fact that remaining equipment divided among non-deploying units at home station, the SDSs, CTCs, TRPs, and TTCs are modern and compatible with the active component. If not, then the second variable, *training*, in the AREF model can not be adequately achieved prior to the third variable, *mobilization*.

18

Historically, the Army Has Done a Poor Job Modernizing the Army Reserve

In 1968 a re-organization eliminated a number of units and concentrated their resources in units specifically cited in these contingency plans. In the interest of bringing all Army National Guard (ARNG) and Army Reserve (USAR) forces to roughly equal levels of readiness, the Department of the Army in September 1969 dropped the priority system prevalent under the selected reserve force (SRF) concept and incorporated the reserve Components structure into the Department of the Army's Master Priority List.

---*Passage from Department of the Army Historical Summary: FY 1970* [*43*].

The Army has been bringing the reserve components to roughly equal levels of readiness and modernization through the DAMPL process for almost forty years. The integration process has been steady but very slow and must be accelerated if the Army Reserve is to remain ready and relevant.

Although historically the Army has done a poor job of modernizing the Army Reserve, it is not entirely the Army's fault. The Army was not capable of modernizing the Army Reserve at a level that was expected during and after the Vietnam War, nor was it capable of modernizing an Army Reserve force to the level that is necessary in today's environment. There are several reasons. First, the Army Reserve by design was principally elements of the nation's strategic reserve. As such, they were organized and resourced at lower levels than most active component units. Secondly, the *National Military Strategy* during the Cold War period envisioned a mobilization timeline that allowed for the proper amount of time to train and equip the reserve component [44]. The strategy for the Army Reserve during the Cold War was to *mobilize, train,* and *equip,* a concept that focused on receiving equipment after the mobilization and training phases [45]. Thirdly, modernizing and equipping an Army Reserve that saw relatively little action since the Cold War was not prudent financially for the active Army that traditionally received less in equipment procurement funding than the other military services. In addition, after the Vietnam War and prior to 9-11, the Army downsized significantly in personnel and structure as did their budgets.

The beginning of the attempt for full integration of the active and reserve components began in the early 1970s as part of the post-Vietnam era strategy under the former Secretary of Defense James Schlesinger, who crafted the historic *Total Force Polic*y. The concept was devised as a means to deal with changing national priorities, reduction in military spending and force structure, and the end of the in-volunteer Army [46]. Additionally, *Total Force Polic*y was to eliminate the barriers between the three components of the Army.

Barriers to Full Integration

Although, integration between the three components of the Army has come a long way since the early 1970s, especially in the areas of pay and benefits, military construction, and most importantly standard military education and training; there is still much more to do in equipment modernization. There are three major barriers that still exist today that are affecting full integration of the Army and Army Reserve and the modernization of equipment in the Army Reserve: structural and cultural barriers, current Army equipping policies and practices, and the equipment budgeting and procurement process. Of the three barriers, the Army's equipment budgeting and procurement process is the most challenging and difficult, and is the last barrier of total integration and the lack of equipment modernization in the Army Reserve. Each of these barriers will be addressed separately.

Structural and Cultural Barriers

The Reserve Forces Policy Board (RFPB) is the principal policy advisor to the Secretary of Defense on National Guard and Army Reserve matters. The twenty-four–member board, created in 1952, acts independently to monitor, review and evaluate proposals, actions, and situations impacting the National Guard and Army Reserve forces and, as provided in *Title 10 US, Subtitle A, Part I, Chapter 7, Section 175 of the US Code* reports annually (transmitted by the Secretary of Defense) to the President and Congress [47].

In 1980, the RFPB prepared three reports addressing equipment as the most critical element of modernization and readiness for the reserve component. The reports were disputed by the Service Chiefs, prompting follow-on reports in 1981, 1982, and 1983 to further address equipment readiness and modernization in the reserve components. Initially, the data and

IAT.R0487

conclusions were disputed by the Secretary of Defense and the Service Chiefs, but after scrutiny by several key congressional leaders it was acknowledged that the Services were not in compliance with the *Total Force Policy* and intent of the 1972 DoDD 1225.6, *Equipping the Reserve Forces*. These reports concluded that equipment modernization was the most limiting factor affecting the readiness of the reserve components and laid the groundwork in June of 1982, for the Secretary of Defense to issue a new DoD Policy Memorandum addressing the distribution of equipment for the reserve components. It stated that "units that fight first shall be equipped first regardless of component." This is commonly called the *first-to-fight, first-to-equip* policy [48]. This policy was still in use during OEF and OIF and proved to be obsolete as deploying units did not follow the force package sequencing process described earlier.

The lack of readiness of the reserve components in the early 1980s led the Congress to develop several initiatives to counter the trends of the Services not adequately funding their reserve components regarding new equipment procurement. One important initiative adopted in 1982 was the *Dedicated Procurement Program* (DPP), later referred to as the *National Guard Reserve Equipment Appropriation* (NGREA). The NGREA are funds specifically appropriated and designated by the Congress for new equipment procurement for the reserve components. It was not part of the President's Budget until 1998 where it has since been included in the Total Obligation Authority for defense spending. Historically, the NGREA funding was used for procurement of modifications, upgrades, and add-ons for some larger equipment and was never intended to be the primary source of new equipment procurement for the reserve components. Over the years, this has evolved into a relevant source of new equipment procurement for the Army Reserve due to inadequate funding and distribution of new equipment procurement. The major advantage of the NGREA funding is that it is the only source of new equipment procurement funding available to the Reserve Chiefs where they have direct and total control of how the funding is obligated.

During a symposium in 1998, the RFPB identified and examined, through panel discussions, the cultural and structural barriers affecting integration. During the panel discussion on cultural issues, four Army Reserve and National Guard soldiers relayed the cultural barriers they felt existed when they transitioned from active duty to the reserve component. They all

21

agreed the two primary cultural barriers were that the active component did not train and educate its members on the roles and capabilities of the reserve components; and that there was feeling they were perceived as second-class citizens. The seminar groups identified the causes of cultural and structural barriers, the impacted negatively on the *Total Force Policy* of full integration [49].

The cultural barriers identified between the active and reserve components were grouped under these five main categories:

- Lack of trust on both sides and a lack of confidence in the reserve component capability by active component.

- Failure of the Services to adequately manage their components as a seamless organization.

- Second-class citizen syndrome.

- Inadequate and ineffective coordination and communication between active and reserve components.

- Roles of each component not clearly identified for an effectively integrated twenty-first century military force.

The structural barriers identified between the active, guard, and reserve components were grouped under these six main categories:

- Lack of a coordinated Total Force approach to the Services' budgeting process.

- Incompatible pay and personnel systems.

- Incompatible equipment and weapon systems.

- Inadequate representation of the Guard and reserve senior leadership, at the appropriate grade level, on active duty staffs.

- Lack of a coordinated Total Force approach in developing and implementing training and military education requirements and programs.

- Inappropriate disparities in benefits, in today's military environment, between active, Guard, and reserve forces.

22

The Army has done an excellent job in eliminating barriers that existed in the areas of professional military training and education, and pay and benefits. However, of the eleven cultural and structural barriers that were identified as impediments to total integration, there are two barriers that still exist today that are structural and unless eliminated may impact the Army's ability to successfully implement the ARFORGEN model. The two barriers that impact integration of the Army and reserve components are: "Lack of a coordinated Total Force approach to the Services' budgeting process and incompatible equipment and weapon systems."

Transformation of the total Army and the ARFORGEN model supports the transition of the reserve components from a strategic reserve to an operational force. A critical element of this transition is the shift away from managing individuals to managing units. The Army wants to decrease reserve component post-mobilization training time by deploying trained, ready and cohesive reserve units, not individuals. A key aspect to decreasing post-mobilization training for the reserve components is to ensure soldiers have access to modern equipment during pre-mobilization training [50].

Equipping Policy Barriers

The Army's equipping policy under the DAMPL was a barrier to full integration of the active and reserve components. Army procurement and distribution priorities account for many Army Reserve units remaining under-equipped and being more slowly or less modernized than the active Army. Over the past decade, the Army has emphasized procurement of more modern equipment for the combat or operating forces and placed less priority on procuring equipment for support units or the generating force.

As indicated earlier in Table 1, 26 percent of the Army's CS and CSS units reside in the Army Reserve. The Army Plan places combat forces and various support units into FPs designed to support the warfighting requirements of the Combatant Commanders. A Force Package was a grouping of Army units into packages based on the first-to-fight principle to ensure that programs and resources are consistent with the objectives of the *National Military Strategy* and the requirements articulated in the Defense Planning Guidance. These FPs were funded by the first-to-fight, first-to-resource methodology that prioritizes programming and resources. FPs also drove DAMPL, the Army Acquisition Objective, and modernization plans. There were four FPs (1–4) and

23

two associated force support packages (FSPs) (1–2) and the rapid response support force. The four FPs are the Contingency Response Force (FP 1), the Rapid Regional Response Force (FP 2), the Reinforcing Force (FP 3), and the Strategic Reserve (FP 4). The Army National Guard and the Army Reserve provided CS and CSS units to the theater of operations through FSP method. FSP 1 included those elements required for support to the Major Contingency Response Force of FP 1. FSP 2 included elements aligned against requirements for the Rapid Regional Response Force organized into FP 2. The Rapid Response Support Force included the remaining reserve component structure, which fills other CS and CSS requirements for the Rapid Regional Response Force (FP 2) and the Reinforcing Force (FP 3). These remaining reserve component CS and CSS units were aligned with strategic FPs based on latest arrival date in a theater of operations [51]. The whole concept of force packaging and force support packages of combat, combat support, and combat service support force structure between the three Army components was very difficult to understand and manage. As a result, deviations from and between Force Package methodology was not uncommon and in many instances was normal.

In February of 1993, the US Government Accountability Office (GAO) concluded in its report the Army's equipping policy and the DAMPL sequencing process has had a negative affect on the Army Reserve [52]. The reason was that although the Army established a priority sequence of first-to-fight, first-to-equip for early deploying units, the Army frequently deviated from this sequence. For example, deviations were made to ensure that units intended to fight together had compatible equipment and that as many units as possible meet minimum deployment standards. These deviations often resulted in active Army units that were lower on the DAMPL receiving new equipment before higher priority Army Reserve CS and CSS units. The Army assigned a high equipping priority to FSP 1 and FSP 2 units that were intended to support the Army's contingency force. However, it assigned FSP 3 units a lower priority than all active Army combat divisions. Equipment readiness of units in this third Force Support Package, which consists of Army Reserve support structure suffered significantly because they were designated as lower priority. Ironically, about 50 percent of Army Reserve CS and CSS units in FP 4 were mobilized and deployed in the first Gulf War [53]. Again, many support units in FP 4 in the beginning of OEF and OIF were deployed before those units assigned in FPs 1 through 3.

24

The Army realized the DAMPL sequencing process that assigned priorities and determined allocation of limited resources was outdated and needed to be replaced.

In FY 2007, the Army moved toward a new concept in determining priority of resourcing of units for reset and new equipment: the ARPL. Under the ARPL, the focus first and foremost is on the deploying forces regardless of component. The priority for resourcing under the ARPL is as follows [54]:

1. Deployed Forces

2. Next Deploying Forces

3. Training and Doctrine Command

4. Transforming Forces

5. Army Pre-positioned Stocks

6. Forward Stationed Forces

7. **Early Stage Modularizing and Resetting Reserve Component Units**

8. Special Instructions

9. Reconstituting Units/Others

On July 19, 2006, LTG Jack Stultz, the Chief of the Army Reserve expressed his concern regarding priority placement of the reserve components on the ARPL during testimony to the Commission on National Guard and Reserves. He stated "there continues to be an issue with the segregation of reserve component requirements from that of the active component. Active component units in the ARFORGEN process rank higher in priority than reserve component units at the same point and gates in the model. This places reserve component units in a position of being behind the "power curve" while preparing for mobilization and deployment" [55].

Equipment Procurement Budget Barriers

Equipping and modernization of Army Reserve occurs in several ways:

- Other Procurement Army (OPA) appropriations via the P-1R document. The P-1R is a subset of the Procurement Programs (P-1) Report and is a procurement summary by

Budget Line Item Number and appropriation under the Other Procurement, Army appropriation commonly referred to as OPA funding.

- National Guard and Reserve Equipment Appropriation (NGREA) and congressional adds; funding allocated directly to the reserve components by the Congress annually.

- Limited cascading of used equipment from the active Army to the Army Reserve.

- Revitalization of old equipment, via extended service and rebuild programs [56].

However, for the purpose of addressing strictly modernization of Army Reserve through new equipment procurement, the cascading or "handing down" of equipment from the active Army and revitalization or recapitalization are excluded. Since much of the CS and CSS force reside in the reserve component, cascading of equipment from the Army is not often an option for equipping the Army Reserve because the majority of cascaded equipment is combat arms, thereby, benefiting the Army National Guard. Frequently, the small amount of equipment that is cascaded to the Army Reserve is in need of repair and the resources required to repair or refurbish this equipment must be taken from other programs. The Army Reserve increasingly relies on limited overhaul and rebuild programs of existing equipment to retain mission capabilities and improve modernization. Revitalization or Recapitalization is the Army's strategy to provide more capable, reliable, and economically sustainable equipment by rebuilding fielded systems to restore them to a like-new condition in appearance, performance, and life expectancy and in some instances inserts new technology to improve reliability and maintainability. In most cases, Revitalization or Recapitalization appear to be only temporary fixes that fail to address the full scope of problems resulting from the lack of support for reserve component equipping requirements within the higher order Army resource processes [57].

Congressional adds and the NGREA, although used for procurement of new equipment will not be included in this paper as a recognized means of modernizing the Army Reserve. New equipment procurement through congressional adds and the NGREA was never intended as a long term fix for improving equipment modernization within the reserve components. On several occasions, with the support of the Army, the Congress has threatened to eliminate these appropriations. Furthermore, appropriation levels from year to year vary drastically, thereby

26

making long term planning and programming for receipt and distribution of new equipment impracticable and unpredictable [58].

The Army's current equipment procurement budgeting and distribution process is still deeply rooted in the Cold War era construct whereas funding is centrally controlled and distributed. Equipment requirements are identified by the Army's Deputy Chief of Staff, G-8 and validated by Deputy Chief of Staff, G-3 and approved requirements are published in the Procurement Programs (P-1) Report and submitted to the Congress with the President's Budget. The P-1 report is a procurement summary by Budget Line Item Number and Appropriation under the Other Procurement, Army appropriation commonly referred to as OPA funding. The P-1R is a subset of the P-1 and lists projected *not* budgeted equipment appropriations for the reserve component. The difficulty with the P-1R is that it is a distribution planning document, *not* a budget execution document. Equipment listed on one P-1R is often changed in subsequent versions. Since there is no component specific wording in the appropriation, there is no statutory constraint on how the Army distributes or withdraws projected OPA funding from the P-1R. The result is that valid Army Reserve requirements are not properly identified and resourced because the Army Reserve is not notified when projected funding is withdrawn by the Army [59].

The Family of Medium Tactical Vehicle (FMTV) system is a well documented example of the Army's inability to distribute adequate funding to the Army Reserve as annotated on P-1R document.[60] As stated earlier, the Army Reserve is comprised of 26 percent of the CS and CSS force structure within the Army. FMTVs are mission essential trucks for combat support and combat service support units. Currently, the Army Reserve is utilizing 1960's era 2.5 ton and 5 ton trucks in-lieu of the more modern, dependable, and safer FMTVs. Furthermore, when funding is withdrawn or slips to the right or into the out-years by the Army on the P-1R document, the Army Reserve leadership is not solicited on the impacts on or the effects to readiness, training, and modernization.

Nonetheless, in 2003, the Army Reserve reported having only 246 FMTV on hand of a requirement for 13,148 vehicles or 1.8 percent [61]. The FMTV consists of the Light Medium Tactical Vehicle (LMTV) or 2.5 ton truck and the Medium Tactical Vehicle (MTV) or 5 ton truck. Although, several millions of dollars were projected in the P-1R for procurement of

FMTV from 2003 to 2006, the Army Reserve received approximately 886 FMTV during that time period and is still critically short 12,164 FMTV. In 2006, during the annual Equipment Management Brief to the Assistant Secretary of Defense for Reserve Affairs, the Army Reserve reported only 8.5 percent of the required FMTV on hand [62]. Table 3 shows projected FMTV funding from FYs 2000 to 2006 in the P-1R document for the Army Reserve [63].

Table 3. Projected FMTV Funding in the P-1R for the Army Reserve

YEAR	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total ($)
PR-1R FEB 00	$35 M	$34 M	$35 M	$123 M	$344 M	$31 M	N/A	$602 M
PR-1R FEB 01	N/A	$256 K	$6 M	$61 M	$8 M	$48 M	$93 M	$216.2 M
PR-1R FEB 02	N/A	$32 M	$38 M	$308 M	$165 M	$214 M	$34 M	$791 M
PR-1R FEB 03	N/A	N/A	$38 M	$299 M	$116 M	$197 M	$153 M	$803 M
PR-1R FEB 04	N/A	N/A	N/A	$61 M	$5 M	$266 M	$7 M	$339 M

From 2001 to 2007, the Army was budgeted approximately $87.6 billion for new equipment procurement. Of the $87.6 billion projected, the Army Reserve was projected to receive $2.2 billion, or 2.5 percent of the total projected funding for new equipment procurement or, on average about $323 million per year as annotated in Table 4 [64].

Table 4. Percentage of Army and Army Reserve DoD New Equipment Procurement Budget

Budget Year	DOD New Equipment Procurement Budget ($) in Millions	Army Portion of DOD Budget ($) in Millions	% of Total DOD Budget for Army	Army Reserve Portion of Army Budget ($) in Millions	% of Total Army Budget for Army Reserve
FY 2001	$60,270	$10,424	17.3%	$183	1.75%
FY 2002	$61,594	$12,371	20.1%	$188	1.52%
FY 2003	$68,710	$13,770	20.0%	$468	3.40%
FY 2004	$72,747	$10,756	14.8%	$291	2.71%
FY 2005	$74,905	$11,736	15.7%	$322	2.74%
FY 2006	$78,041	$11,755	15.1%	$402	3.42%
FY 2007	$84,197	$16,841	20.0%	$407	2.42%
Total	$500,463	$87,653		$2,261	

However, the Army Reserve reported to the Office, Secretary of Defense for Reserve Affairs that it required a minimum $400 to $500 million per year in new equipment procurement to improve EOHreadiness rates and modernization shortfalls. Currently, the Army Reserve has a

28

$3.7 billion shortfall in equipment requirements for FY 2007, alone. This is a $2 billion increase in equipment shortages for the Army Reserve since FY 2001 as annotated in Table 5 [65].

Table 5. Army Reserve Equipment Requirement & Shortage Dollar Value

Budget Year	Total Requirement ($-value)	Total Shortage ($-value)	Total Requirement ($-value)
FY 2008	$10,174,401,982	$3,776,383,451	37.10%
FY 2007	$10,190,068,031	$3,702,112,837	36.30%
FY 2006	$9,803,630,289	$2,845,453,342	29.10%
FY 2005	$9,684,247,661	$2,858,220,738	29.50%
FY 2004	$8,084,698,782	$2,295,663,360	28.40%
FY 2003	$7,743,849,000	$1,007,093,000	24.60%
FY 2002	$7,761,721,000	$1,766,060,000	22.80%
FY 2001	$7,814,000,000	$1,700,000,000	21.80%

With only 2.5 percent of the total projected Army OPA budget between FYs 2001 to 2007, a $3.7 billion shortage in current equipment requirements, and a $5.5 billion shortage in modernization of only the top five equipment items, and assuming OPA funding in the Program Objective Memorandum (POM) does not slip to the right as it has every year; the future of improving equipment modernization in the Army Reserve appears austere. In addition, there are many competing requirements within the Army for limited funds that it will be a challenge for the Army to not decrement OPA funding from the P-1R Document, thereby again assuming risk in not modernizing the reserve components. Additionally, decrementing the OPA funding will seriously jeopardize the operational requirements that drive ARFORGEN training and readiness, which supports the prioritization and synchronization of institutional functions to resource, recruit, organize, man, equip, train, sustain, source, mobilize, and deploy cohesive units more effectively and efficiently. Accepting risk in reserve component modernization will disregard the Army's intent to equip like units to a common MTOE standard with the goal of modernized, compatible and interoperable systems between the components during the ARFORGEN Implementation Phase 3, the Objective State.

Initiatives Competing Against Army Reserve Equipment Modernization

Rising Costs of Current Military Operations

No doubt, the costs of the GWOT are expensive and have escalated and there are plenty of initiatives competing for limited DoD financial resources. The Army is no different and has plenty of initiatives on the table competing for resources. Since September 2001, the Congressional Budget Office (CBO) estimates that Congress has appropriated $503 billion for military operations and other activities related to Iraq and the GWOT, including $70 billion appropriated thus far in FY 2007. Through the end of FY 2006, appropriations to the DoD for those purposes had totaled $463 billion, and the DoD's outlays for Iraq and the GWOT had reached an estimated $310 billion. The President's budget includes a request for another $94 billion for this year and $142 billion for 2008. The CBO was asked by the Congress on several occasions to estimate the future costs of operations in Iraq and for the GWOT, but estimating war costs is always difficult. In addition, the CBO estimated the additional costs for an increase of approximately 20,000 troops as requested by the President would range from $9 billion to $13 billion for a four-month deployment and from $20 billion to $27 billion for a 12-month deployment, depending upon the total number of troops deployed and including additional costs [66].

Transformation to a Modular Force

According to a GAO Report # 06-548T, released on April 4, 2006, the Army's cost estimate for completing modularity by 2011 has increased from $28 billion in the summer of 2004 to $48 billion in the spring of 2005 to an estimate of $52.5 billion today.

The GAO report further stated the Army's cost estimates for modularity may limit the Secretary of Defense and the Congress's ability to weigh competing funding priorities. Of the $52.5 billion estimate, $41 billion, or 78 percent, has been allocated for the procurement of new equipment, with the remaining $11.5 billion allocated to military construction, facilities, sustainment, and training. Although the estimate has grown, the Army's rationale for fixing costs to specific aspects of modularity, it is still unclear how the Army will distinguish between costs associated with modularity and the costs associated with modernizing equipment or restoring

30

equipment used during ongoing operations [67]. Additionally, the current cost estimates of modularity do not factor in the projected end strength increase of 65,000 soldiers and subsequent "overhead" such a facilities and equipment to support the increase in force structure over the next five years.

Resetting the Force

For FY 2006, the Army estimated the total reset bill was $13.5 billion [68]. The Army's current plan to equip and reset the force is ahead of schedule. With the entire $17.1 billion supplemental allocated by the Congress at the beginning of FY 2007, the Army has obligated $9.8 billion for reset; $4 billion for depot and field-level repair and $5.8 billion for new equipment procurements [69].

Reset comprises a series of actions to restore units to a desired level of combat capability commensurate with mission requirements and availability of resources:

- **Replacing** battle losses and washed out equipment that is damaged to the degree that repair is not economical feasible.

- **Recapitalizing** equipment that needs extensive refurbishment, implementing lessons learned where sensible and affordable.

- **Repairing** existing equipment in accordance with applicable Army maintenance standards.

The purpose of equipment reset is to bring unit equipment to combat-ready condition and reverse the effects of combat stress, either for the unit's next rotation in support of current operations or for other, unknown future contingencies. The Army resets units forward to the new modular formations, not back to their legacy designs**.** The Army Reserve is expected to be a recipient for reset funding. Furthermore, all three components of the Army will require a significant amount of reset following the end of the current conflict and will require increased funding above the baseline budget for a minimum of two to four years after hostilities have ceased. This funding is critical to ensure the viability of the Army for future contingencies, and to preclude the need for increased Research, Development and Acquisition funding when additional contingencies occur [70].

On March 15, 2006, during testimony to the Congress, LTG James Lovelace, the Army Deputy Chief of Staff, G-3/5/7 said the war on terror has shortened the military economic useful life of equipment such as helicopters roughly two to three times the peacetime rates and the aging truck fleet is experiencing usage rates five to six times the peacetime rates. The increased operations tempo combined with combat losses is challenging the Army's ability to sustain operational availability of equipment [71]. Replacing, recapitulation, and repairing existing Army equipment will compete with modernization efforts throughout the Army. Losses of major Army equipment items make it all the more important that Army procurement programs remain fully funded and on track.

Increase in Army End Strength

The House Armed Services Committee authorized an increase of 30,000 in the Army in the 2006 National Defense Authorization Act. However, Defense Secretary Robert Gates said on January 12, 2007, that he will seek an end strength increase of 65,000 soldiers over the next five years [72].

This increase will complement President Bush's unveiling of a near-term troop surge in Iraq. Secretary Gates is recommending that recent temporary end strength increases of 30,000 for the Army be made permanent. In addition, he wants the Army to grow by another 7,000 soldiers per year, bringing total end strength in the active Army to 547,000 soldiers. Undoubtedly, there is a significant cost to this recommendation that is estimated at $70 billion [73].

The Army senior leadership has made it very clear to the administration and the Congress they are only in favor of an increase in the Army end strength if adequate funding is appropriated for not only pay and allowances, but facilities and equipment as well. Too often, in the past the Army senior leadership accepted an undertaking without getting adequate funding to support total mission requirements. The consequences were usually the reallocation or decrement of existing and future budgets that ultimately tricked down and negatively affected reserve components modernization programs.

Recommendations to Improve Equipment Modernization in the Army Reserve

Establish separate equipment procurement appropriation (Other Procurement, Army Reserve (OPAR)), vice OPA and hold the Army Reserve accountable for equipment modernization.

The Army needs to establish separate equipment procurement appropriations for the reserve components such as Other, Procurement Army Reserve (OPAR) for the Army Reserve and Other, Procurement Army National Guard (OPANG) for the Army National Guard.

The Army is projected to receive approximately 20 percent of the total DOD budget in FY 2007, with the Army Reserve projected to receive 2.42 percent of the Army's 20 percent or $407 million. However, as stated earlier, since the P-1R is a planning document, *not* a budget execution document there is no statutory constraint on how the Army distributes or withdraws OPA funding from the P-1R document. The OPA funding is managed in the Equipping (EE) Program Evaluation Group (PEG). The Department of the Army, Deputy, Chief of Staff, G-8 is the principal official responsible for administering the funding in the EE PEG and provides its functional guidance, and, through the PEG, supports planning, programming and budgeting for the assigned PEG function. The Army Reserve is not involved in the planning, programming and budgeting functions of the EE PEG.

There are five other PEGs within the Army to provide functional guidance, and, through the PEG, supports planning, programming and budgeting for the assigned PEG function; they are Manning (MM), Training (TT), Organizing (OO), Sustaining (SS), and Installation (II). The Office of the Chief Army Reserve receives direct funding from the Army for each of these PEGs and manages the resources accordingly. Unlike the other PEGs, the EE PEG is the only PEG where the Army Reserve receives no direct funding in their budget with which to administer, program, or budget. In other words, the Army Reserve receives no direct funding for the acquisition of new equipment from the OPA appropriation. The OPA appropriation is managed solely by the Assistant Secretary of the Army for Acquisition, Logistics, and Technology and the Army G8.

33

The Army Reserve has a proven track record in the acquisition of new equipment via the National Guard and Reserve Equipment Appropriation since 1982 and can easily manage their own equipment appropriation. Unfortunately, every year, the Army Reserve has to defend this appropriation against elimination by the Congress. Members of Congress continuously inquiry as to why a separate appropriation is going directly to the Army Reserve when the Army is receiving money for the acquisition of new equipment for the Army Reserve.

The establishment of a separate new equipment procurement appropriation for the Army Reserve would permit the senior leadership in the Army Reserve to be held more accountable for equipment and modernization readiness. More importantly, although the Army is still responsible, it would relieve accountability for equipment modernization of the Army Reserve and the temptation to withdraw or decrement projected funding by the Army to pay for other competing initiatives.

Expand Acquisition Corps authorizations in the Army Reserve and assign to key CS and CSS Program Executive (PEO) and Program Management (PM) offices to ensure cross-fertilization and economies of scale in purchasing of major equipment items.

In December 1999, the Chief of the Army Reserve approved establishment of the Army Reserve Acquisition Corps and approved 53 full-time military acquisition positions to support the Army's need for trained Army Reserve soldiers to work in Critical Acquisition Positions (CAP) throughout the Army. The Army Reserve's entry into the Army Acquisition Corps emphasized the continued integration of the Army Reserve with the active Army and the importance of the one Army concept to the Acquisition Corps. To improve Army Reserve oversight at the Life Cycle Management Commands (LCMC) that manage the acquisition of CS and CSS equipment, the Army Reserve should expand the military Acquisition Corps authorizations and develop a civilian acquisition workforce in collaboration with the Army Acquisition Corps and designate additional CAPs and, within those CAPs, key leadership positions that can benefit in the acquisition and distribution of modern equipment for the Army Reserve.

34

The time is right, as the Acquisition, Logistics, and Technology (AL&T) workforce is expected to grow from approximately 45,000 to more than 60,000 with the addition of the Corps of Engineers for Civil Works, Installation Management Command and Assistant Chief of Staff for Installation Management AL&T workforces. This expansion should include the Army Reserve acquisition workforce as well.

Embedding Army Reserve Acquisition Corps personnel into the PM's office is not a new notion and has proven to be very successful in the offices of PM-Trailer, PM-Petroleum and Water Systems, and PM-Heavy Tactical Vehicle. As a result, it has vastly improved the implementation and management for the fielding of these CS and CSS systems over the last few years throughout the Army Reserve. This success has come as a result of having adequate Army Reserve representation on these selected PM staffs, thus eliminating the organizational barriers that existed before and in many cases providing access to Army Reserve monetary resources that benefited the Army as a whole through cooperative acquisition efforts.

From an equipping perspective, it only makes sense especially since modernization and upgrades for equipment are tied to the ARFORGEN process. When Army Reserve units come back from an operational deployment and equipment goes into its reset and training phases, the PEOs and LCMCs will benefit from having Army Reserve representation on staff to facilitate the cyclic process.

Integrate the various distribution and documentation databases with equipment accountability and resource databases so that each component of the Army can review accountability, transfers, withdrawals, and procurement records and actions.

There is a persistent problem with a disparity between the active and the reserve components regarding various distribution and documentation databases with equipment accountability and resource databases. Although, the Army has made some progress in addressing this issue, full implementation of a centralized database to connect each of these critical functions is not yet a reality.

The majority of the Army's equipment accountability and distribution and documentation challenges stem directly from the inability of current databases to interface and provide accurate

35

data from which to make sound decisions. The Army needs to improve the interface and connectivity of these critical nodes to provide total asset visibility of equipment requirements and resources from end-to-end across the entire Army. Furthermore, the Army should develop integrated processes and information systems architecture and standardized business practices that allow unity of effort across the DoD. When the Army is updating and fielding various databases, it must be done across the entire Army simultaneously. Too often, the reserve components are utilizing older versions of hardware and software that are incompatible with the Army's newer version, thereby limiting the flexibility to deal with rapidly changing equipment accountability and distribution, and resource environments.

Army logistics and force structure managers and leaders need specific training on how to overcome the barriers that discourage commercial firms from doing business with the DoD. This training is extremely important and is likely to become more of an issue over the next several years, because the DoD lacks capabilities that the commercial sector can offer regarding large scale databases that require integration of resource, logistical, and distribution information. A good first step would be broad-based training on what latitude exists in current law and regulation to procure products and services from commercial companies that have the subject matter experts available that can develop comprehensive distribution and documentation databases that can benefit the DoD and the Army.

Pre-position equipment at strategic locations to improve accessibility for all components of the Army and develop training authorization packages.

Since the Army does not have enough money or equipment to resource every unit to 100 percent of required equipment, the Army must prioritize units for equipping based on assigned missions and their place in the ARFORGEN rotational cycle. The days of a unit having all of their authorized EOHare over. The cultural mindset of leaders in the today's Army has to change to reflect the fact that resources are limited even in time of war, and in many cases because of war.

Several factors challenge the Army's ability to provide adequate numbers of equipment within the ARFORGEN process. For example, high-demand, low-density items such as up-armored tactical wheeled vehicles, counter-improvised explosive device systems, and route

36

clearing vehicles are not available in adequate numbers to equip all non-deployed units. Therefore as a result, the units redeploying and those awaiting deployment will require training sets that contain these types of items to be shared by all.

The placement of these training sets are critical at locations such as home station, strategic deployment sites, individual training and collective training sites, combat training centers, training readiness platforms, and the TASS training centers. This ensures the best available equipment is provided to all Soldiers regardless of component. Furthermore and most importantly, it ensures that soldiers are training on the same equipment that will be provided in the theater of operations. For the reserve component, this has often not been the case. In many cases, Army Reserve soldiers are training on older models of tactical wheeled vehicles and obsolete weapons systems that cause integration and training problems upon arrival in theater. Establishing baseline equipment training sets for major end items reduces the sustainment, maintenance, and transportation costs that can be diverted to the procurement of newer equipment. Individual equipment, such as masks and weapons can be maintained at home station.

The Army G-3, G-8, Training & Doctrine Command and the US Army Force Management Support Agency should determine a requirements, validation, and documentation process to establish equipment training authorization packages by standard requirements code and branch. In addition, the Army needs to eliminate the equipment readiness code classification of equipment whereby some items of equipment are more critical in certain units than others. If an item of equipment is required on a MTOE then it should be authorized as well.

Summary

Modernization and interoperability of the Army Reserve are essential to their readiness and relevance. The Army's transformation to a modular "plug and play" force has been referred to as the largest Army reorganization in fifty years. It encompasses the Army's total force; active Army, National Guard, and Army Reserve and directly affects not only the Army's combat units, but the combat support and combat service support forces. Modularity is just the beginning to a never ending task of transforming the Army and for the first time in history, the Army has

IAT.R0487

included the reserve components as full and equal partners in the transformation process. However, the goal of total integration is impossible unless the Army Reserve is given the opportunity and resources to manage their piece of the integration process of equipment modernization. Why? Because equipment modernization has been the Achilles heal to the *Total Force Policy* and achieving the goal of full integration through equipment modernization is impossible unless the reserve components modernize concurrently with the active Army.

While the Army Reserve transferred large numbers of equipment from non-deploying units to deploying units and left equipment in theater upon redeployment, this strategy is not sustainable over the long term. The DoD's strategies for equipping reserve component units during the Cold War may have been appropriate to that era, but significant changes in the national security environment have led to greater use of the reserve components and spurred the need for a comprehensive reassessment of how the Army Reserve is equipped and modernized. Although, the Army has some profound initiatives under way to will enhance reserve component readiness such as modularity and a new cyclical force generation model, the reserve components will continue to be challenged to support ongoing operations if not adequately budgeted and given direct responsibility for planning, programming, and budgeting for the procurement of new equipment.

Current DoD policy requires the Army to be accountable, but not responsible for reserve component funding of equipment modernization through the OPA appropriation within the P-1R Document. Yet, competing budget demands have rendered this directive impractical and modernization and interoperability has been very infrequent over the years since the implementation of the *Total Force Policy* in 1970. Today's competing budget demands exceed billions of dollars and will no doubt challenge the Army's limited equipment procurement budget. Since the P-1R is a planning document, *not* a budget execution document there is no statutory constraint on how the Army distributes or withdraws OPA funding from the P-1R document. The Army will be challenged not to withdraw or decrement OPA funding from the P-1R document to pay for transformation, rising OIF/OEF and reset costs, and the increases in the Army end-strength.

IAT.R0487

The establishment of a separate equipment procurement appropriation for the Army Reserve and funding at levels required to support its transition to a rotational and operational force would permit the senior leadership in the Army Reserve to be held accountable for equipment and modernization readiness. More importantly, it will drastically improve the odds for the success of the Army's transformation to modularity, the implementation of the ARFORGEN model, and finally eliminate the last remaining barrier to full and total integration between the active Army and Army Reserve.

IAT.R0487

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